Report of
NATIONAL RANGE WORKSHOP
January 22 – 25, 1957

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

REPORT OF THE
NATIONAL RANGE CONSERVATION WORKSHOP - 1957
Great Falls, Montana, January 22 - 25

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UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Washington 25, D. C.
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To Service personnel:

The attached report is a summary of the National Range Workshop held in Great Falls, Montana, January 22-25, 1957, and expresses the conclusions and recommendations on which the entire group reached agreement. Until these recommendations have been approved by the Administrator, they do not constitute Service policy.

The summary and conclusions from the special field study on methods of determining "Proper Range Use" carried out by the individual States in 1956 are not included in this report. The results of that study aided materially in the development of technical standards for this practice, however, and the assistance of the State Conservationists who directed it is gratefully acknowledged.

In accordance with the recommendations of the Administrator's Policy Committee, sufficient copies of the report are being furnished to State Offices in the range States to supply one each to Area Conservationists and GS-9 and 11 Range Conservationists.

F. G. Renner
Head Range Conservationist

Attachment

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INTRODUCTIONS AND OPENING REMARKS - F. G. Renner

In welcoming you to the third consecutive annual national range workshop, I would like to point out that we have a real challenge ahead of us for the next four days. Our past meetings have resulted in some notable accomplishments and for the benefit of those of you who are meeting with us for the first time, I would like to review these briefly.

Accomplishments of 1955 Range Workshop.

In 1955, at San Jose, a draft of a statement of the authorities, objectives, and policies needed to provide general guidance to the conservation work of the Service on range lands was developed. After review by other Divisions of the Service and by the State Conservationists, this statement was released as Administrator's Memorandum 88.

Standards for range site and condition classification were also developed at San Jose and after similar review were approved by the Administrator and released as SCS Memorandum 89.

In addition, a proposed guide for functional inspection of Service range work was considered at this meeting and after considerable field testing and further improvement was furnished to State Conservationists with Dr. Graham's letter of December 3, 1956.

Accomplishments of 1956 Range Workshop.

In 1956, another three important tasks were accomplished when we met at Denver. Special attention was given to the problem of providing more effective follow-up assistance to district cooperators in the planning and application of management practices. The resulting committee report received considerable favorable comment and was furnished to all State Conservationists with the Administrator's recommendation that it be studied by State staffs

and be given further consideration at meetings of work unit conservationists. Subsequently, State Conservationists from many of the States outside of the range area, as well as those in the West, requested additional copies of the report for the use of their field staffs.

Standards for technical range site descriptions which are called for in SCS Memo. 89 were also developed at the Denver meeting. These were approved by the Administrator and furnished to State Conservationists on April 17, 1956.

The third subject considered at Denver dealt with standards for the uniform reporting of "grassland" practices. The specific recommendations developed have been cleared with the other Branches of the Plant Technology Division but have not yet been incorporated in approved Service reporting procedures. This job is still to be done.

The group at the 1956 workshop was unable to reach agreement on technical standards for the determination of proper use and recommended that a proposed "Guide to Degree of Present Use" be tried out in all range States; that a report be made by each State on the results; and that a committee be appointed to analyze these reports and report to the 1957 workshop. Through the cooperation of all State Conservationists in the West this trial was carried out during the past field season and the committee's recommendations will be considered at our meeting this week.

A LOOK AHEAD. - E. H. Graham, Director, Plant Technology Division.

During the past year considerable progress has been made in the range conservation phase of Service activities. Some of the primary accomplishments have been:

1. Establishment and filling of a Washington-Field range conservationist (GS-13) position for the Southeastern States.
2. Establishment of a GS-12 range conservationist position to provide participation in a systematic long-range investigation of basic soils-vegetation criteria for identification of range sites.
3. Publication of the first soil survey report with recognition of range-site and range-condition classes (Cherry County Nebraska).
4. Substantial progress toward the completion of technical standards for Service-wide use for all major range conservation practices.
5. Development of standards for technical range-site descriptions and progress in improving or completing State guides in more than half the 20 Western range States.
6. Establishment of several new GS-11 and GS-9 range conservationist positions in 9 Western States.

Among the problems facing the Service in range conservation, the following may be listed:

1. Control of noxious shrubs as a part of conservation work on some 200 million acres of land.
2. Further attention to training in ranch planning and application throughout the range States.
3. Need for more systematic recruitment of range conservationists at the GS-5 level.
4. As part of our reappraisal of the land capability system, need to review usefulness of standard soil surveys on range land in terms of their value for providing a proper basis for needed technical assistance on such lands.

5. A better understanding of the relation between range condition and hydrologic condition of range lands.
6. A better means of evaluating the relative benefits of land treatment measures as opposed to structural measures.
7. Closer working relationships between range conservationists and agronomists, particularly in relation to the production of additional supplemental feed, which in some cases is only accentuating the over-use problem on range land use rather than resolving it.

The Service expects range conservationists to:

1. Possess the best technical knowledge available in the field. This involves considerable attention to self improvement and keeping up-to-date through technical societies, reading, preparation of technical papers, attendance at workshops, etc.
2. Be effective in translating technical knowledge into workable suggestions or recommendations. In many ways this is the core of the job of technical specialists in the Service.
3. Maintain close liaison with line officers in order to provide the most effective assistance to them.
4. Maintain working relationships with range conservationists in other agencies and organizations.
5. Function as a member of a technical team whose objective is not only range conservation but a total program of soil and water conservation.

ASSISTING RANCHERS TO DEVELOP CONSERVATION PLANS - B. W. Allred.

One-half day was devoted to a discussion of the following aspects of this subject:

Review of proposed revision of SCS Memorandum 23.

Resource inventories with ranchers.

Feed and forage balance sheets.

Conservation plan maps.

The conservation plan (Restricted to a record of rancher decisions).

Use of range guide sheets and job sheets.

Technicians notes.

Progressive planning, and

Follow-up assistance on practice application.

The discussion covered Service policy on these matters, accepted procedures in the different States, and provided specific answers to numerous questions raised by the participants. No record of the presentation or discussion was made for the purposes of this report, each participant making notes on points of special interest to him for his own future reference.

PRESENTATION OF SAMPLE RANCH CONSERVATION PLANS

Each range conservationist was provided 20 minutes to present one of the best recent SCD cooperative agreements from his State. By instructions prior to the meeting, the plan selected was to be (1) one conforming to current policy, particularly Administrator's Memos 23, 88, and 89 and current State instructions, (2) one dealing with a ranch having a high proportion of native range on which a site and condition inventory had been completed, and (3) one the range conservationist had helped develop or had worked with another technician and the rancher in developing. The conservation plan map

was posted where it could be examined and the conservation plan, technicians notes, job sheets and other material provided to the rancher or included in the agreement folder were explained.

Presentation of the 14 ranch conservation plans from as many States proved to be one of the most instructive sessions of the meeting. Each range conservationist present had the opportunity to learn of the step-by-step procedures followed in other States in working with range landowners; the usual as well as the unusual conservation problems encountered; the decisions made by the operators to meet these problems; the special devices and approaches used to enlist the interest and stimulate needed action by rancher; relationships with the district and other groups; the kind and nature of follow-up assistance; and the amount of time the rancher had worked with the technician.

Speakers were closely questioned on many points and this served to highlight occasional weaknesses or omissions as well as the many desirable features of the plans presented. The concensus of the group was that this session was valuable in bringing about a better understanding of Service policies and procedures on farm and ranch planning, furnished many new ideas, and should be repeated occasionally at future workshops.

Another conclusion from this session was that considerable progress is being made in the development of "rancher", rather than "technician's" plans. It was evident, however, that this problem has not yet been fully met in some States. Some of the examples presented indicated that certain aspects of planning are still being carried on without the presence of the rancher, and that not all of the stated actions in the plans were, in reality, the records of his decisions.

COMMITTEE ON DEVELOPMENT OF A STANDARD GUIDE FOR DETERMINING PROPER USE ON RANGE LANDS

A committee consisting of H. B. Passey, Chairman, M. D. Burdick, C. S. Fonte, Hershell Bell, E. Wm. Anderson, and L. F. Bredemeier was appointed April 23, 1956 to develop recommendations for presentation to the Workshop at Great Falls.

Committee Report

Assignment No. 1. The committee was charged with the task of reviewing State and local guides and suggested national guides, to analyze differences, and to develop an acceptable national guide if this proved feasible.

The committee reviewed a large number of local guides, suggested national guides, job sheets, utilization standards and other forms and methods of analyzing and evaluating the use of range forage. Each of these guides, forms, and procedures was found to have considerable merit. By and large, they appear to be adequate for the purposes intended and for the local conditions provided for.

No individual guide, standard, or procedure was found, however, which, in the opinion of the committee, will adequately serve the needs and requirements of all the varied situations encountered on range lands throughout the United States. Nor was the committee able to develop such a guide which would incorporate the suggestions and needs of the several States, and which would still be simple and concise enough for practical value.

As indicated by the reports from all of the States concerned, there was found to be general agreement that the grazing use of any range area should be based upon the needs and requirements of the plants growing thereon, consistent with soil protection and the maintenance or improvement of range condition.

There is also general agreement that forage use specifications must be developed on a local basis to fit the needs of each specific range site and the present condition of the range within that site. The prescribed degree of use for any particular area or range unit must be based upon such local use specifications.

The committee recommends that suitable guides (forms, job-sheets, or work-sheets) to aid in the determination of degree of use and for use in training ranchers and others, be developed by each State to meet the particular needs and conditions within that State. At present, we do not propose the adoption of a Service-wide standardized form for this purpose.

The committee believes that the definition of "Proper Use" as it appears in the SCS Records and Reports Handbook is adequate as now written, except that the title should be changed to "Proper Range Use."

The committee recommends that the following be used as the standard for reporting the practice, "Proper Range Use":

> "Proper Range Use" may be reported as applied on all lands on which it can be reasonably ascertained that the degree of use at or near the end of the grazing season does not exceed that prescribed by the local forage utilization specifications for those lands."

Action on this part of the report by the Workshop. Except for the proposal to accept without change the present definition of the practice, the above report was approved. (Later in the meeting a slight change in the definition was approved in connection with the technical standard for this practice.)

Assignment No. 2. The committee was also requested to consider the present definitions of "Range Seeding" and "Pasture Planting" to determine if the specific limits of each could be stated more clearly and the contrast between the two practices amplified. The committee proposed the following revisions in the present definitions:

Range Seeding (Native Mixtures). Establishing mixtures of perennial native species, or a mixture containing significant proportions of such species, on lands to be used for range and maintained or improved primarily by grazing management.

Range Seeding (Exotics). Establishing perennial forage plants not climax to the site on lands to be used for range and maintained or improved primarily by grazing management.

Pasture Planting. Establishing stands of perennial or reseeding annual forage plants that will be maintained or improved by cultural practices such as cultivation, fertilizing, mowing or replanting (including over-seeding), in addition to grazing management. (This practice also includes the establishment of meadows).

Action on this part of the report by the Workshop. The group did not approve the proposed change in the present "National Catalog" definition. They did recommend that the following provision be added to Service record and reporting procedures:

> "In those States where it is desired to do so, exotic and native seedings may be segregated."

Pending further discussion with appropriate Service agronomists, no action was taken on the proposed change in the definition of "Pasture Planting."

No action was taken on the committee's recommendation that Service standards be developed for "Management checks" on range lands as it was the concensus that this need would be provided for with the development of suitable standards for the "Proper Range Use" practice.

The committee further recommended the preparation of an outline for developing local utilization standards. The group agreed that the technical standard for "Proper Range Use" should indicate the nature of the points to consider in the development of local specifications. (See section of this report on Technical Standards, "Proper Range Use").

RECOMMENDED PROCEDURES FOR THE DETERMINATION OF HERBAGE YIELD

Introduction. Over the years, the Service has made a substantial number of herbage yield determinations, many of which have served a useful purpose locally. In many cases, however, variations in the methods used in collecting and recording such data have seriously limited their value. To assure maximum efficiency and most usable results from the time and effort required to make herbage yield determinations, the following standardized procedures are recommended.

Purpose. Herbage yield data are used by the Soil Conservation Service to:

1. Provide incentives to land owners and operators to stimulate more rapid application of range conservation practices.
2. Serve as a field working tool in ranch planning and follow-up work.
3. Provide a basis for forage yield comparisons.
4. Aid in evaluating stocking rates.
5. Compare production levels for range sites, and for varying range conditions within a site.
6. Serve as one of the criteria used in testing the validity of site differentiation.
7. Provide information needed for hydrological evaluations in watershed programs.
8. Provide data for publication, including the yield sections of soil survey reports.

Procedures.

1. Collection of yield data should include a determination of total herbage yield, expressed in pounds per acre.
2. Clippings should be made at the approximate ground level for all herbaceous plants.
3. Yield of browse species should be based on current leaf, twig, and fruit production within reach of grazing animals.
4. Yield data should be based on air-dry weights.
5. Yield determinations should be made after the major portion of the current year's growth has been completed and before there is serious deteriation of the herbage. This will be near, at, or shortly after the end of the growing season.
6. Plots may be square, circular, or rectangular in shape.
7. To facilitate ready conversion to pounds per acre, plots should encompass 9.6 square feet or a multiple thereof, depending upon the character of the vegetation and the intensity of the sampling desired.
8. Herbage yields should be made of the current year's growth. A reasonable effort should be made to exclude plant residues from previous year's growth.

Records. Plot data collected should be recorded and filed in a systematic manner with a consolidated file of such data maintained at the work unit office concerned. Minimum records should include:

1. Range site and condition.
2. Species composition - weight estimate in percent.
3. Estimate of current-season growing conditions.

4. Pertinent notes on plant cover and soil conditions.

5. Herbage weights of current yield.

6. Average annual precipitation.

7. Location, date, and examiner.

Forms. A sample for recording herbage yield data is attached. This form may be modified to meet local needs.

(It is recognized that yield determinations that do not meet these minimum standards may also have valid uses. These may include (1) on-the-spot clippings with individual ranchers, (2) clippings made in connection with field tours, and (3) other special purpose clippings where continuity and comparability of data is not a primary consideration).

Training in Yield Determination Techniques. Field training in herbage yield determination techniques is necessary to assure uniformity of methods and comparability of results. Range conservationists should give such training at workshops and in connection with individual on-the-job training activities.

Administrative considerations. The need for and value of yield determinations must be clearly understood by administrators if satisfactory progress in the collection of such information is to be made. Time and personnel needs for this work should be reflected in plans of operation.

HERBAGE YIELD RECORD

Range Site: _____ Date: _____

Location _____ Made By: _____

Soil: _____

Current Season Growing Conditions: _____

_____

Range Condition: _____

_____

Composition:		Density:
Species:	Percent	_____
_____	_____	Plant Residues:
_____	_____	_____
_____	_____	_____
_____	_____	
		Vigor
_____	_____	_____
_____	_____	_____
		Erosion:
_____	_____	_____
_____	_____	_____

Pounds of Herbage:	Green Weight	Dry Weight
Total Herbage: _____	_____	_____
Forage Species: _____	_____	_____
Non-Forage Species: _____	_____	_____

Remarks: _____

_____

_____

TECHNICAL STANDARDS FOR RANGE CONSERVATION PRACTICES

The format for the technical standards provided below follows the recommendations of the 1956 Plant Technologists' meeting which proposed that such standards consist of (1) a definition of the practice, (2) the objectives to be achieved, (3) a statement of the conditions under which it applies, and (4) specifications necessary to apply the practice locally.

Brush Control.

Definition. Killing or suppressing brush or other shrubby growth on range or permanent pasture land by mechanical, chemical, or biological means.

Objective. To eliminate or reduce competition from woody plants to facitate the establishment or reestablishment of a satisfactory stand of adapted perennial forage plants.

Conditions Under Which the Practice Applies.

1. On brush-infested natural grasslands, savannah sites, permanent pasture land, and abandoned cropland intended for range use or permanent pasture.
2. When the land involved has the potential for the reestablishment and maintenance of climax or other adapted perennial herbaceous plants which will provide adequate soil protection.
3. When it is apparent that without brush control, adjustments in the kind and degree of grazing use will not attain the objective in a reasonable period of time.
4. Where there is reasonable assurance that the landowner understands the requirements and costs of the practice including necessary repeat treatment and will apply the kind of grazing management necessary to make the brush control effective.

Specifications. To be developed locally. The following are for illustration only.

A. Mechanical (Mowers, choppers, beaters, and saws).

Plant	Effective date for control	Annual cuttings necessary
Coralberry	May 15	3
Sumac	June 10	3
Ironweed	June 1-10	3
Vervain	June 1-10	2
Stiffleaf goldenrod	July 10	2
Perennial ragweed	August 15	2

B. Chemical. (Hormone sprays 2,4-D and 2,4,5-T).

When to spray. When plants have just developed full leaf, soil moisture is sufficient for good growing conditions, relative humidity is high, air temperature moderate, and wind velocities less than five miles per hour.

Plant	Date	Chemical Low volatile ester	Amount acid (Lbs. per acre)
Coralberry	May 15 - June 5	2,4-D	1-2
Sumac	June	2,4-D	1-2
Skunkbush	June	2,4-D	1-2
Ironweed & vervain	June - July	2,4-D	1
Post & Blackjack oak	May-early June	2,4-D and 2,4,5-T	3
Post & Blackjack oak	May-early June	2,4,5-T	1½-2
Post & Blackjack oak	For re-treatment, use 1 lb. second and again the third year if needed.		

Carrier - for chemical, foliage straying.

Ground spray equipment - Use chemical in 100 gal. water. When dry conditions prevail, add 10 gal. diesel fuel to each 100 gal. solution.

Airplane spraying - Use chemical in 1 gal. diesel fuel plus 4 gal. water. Straight diesel fuel is effective but more expensive.

(Less carrier, straight oil is adequate on moderate stands of coralberry and sumac).

Basal Spray. Adapted to plants over 6 ft. tall and up to 4" dia. Use 1 gal. (4 lbs. acid) 2,4,5-T or 2,4-D and 2,4,5-T mixed in 30 to 40 gal. of diesel fuel. Spray lower 12" of trunk until some solution runs off. Apply at any time. Easier to apply in winter.

Frill and Stump Treatment. Suitable for trees larger than 4 inches in diameter. Frills (over-lapping ax cuts) should be made close to the ground, leaving the chips in place.

Use 1 gal. (4 lbs. acid) 2,4,5-T or 2,4-D and 2,4,5-T mixed in 20 to 25 gal. of diesel fuel.

Fill low frill to overflowing or cover top and sides of stump with solution. Apply at any time of year trees are cut.

Cattle Walkways.

Definition. A levee constructed on marsh range or other range areas subject to overflow to provide access to forage and for use as a bedground.

Objectives. To encourage uniform use of the forage over the entire range unit by increasing accessibility of underused portions, relieving use of denuded and eroding ridges from cattle concentrations, permitting easier handling of livestock and to provide the necessary control of the cattle and the grazing unit to permit the practice of conservation management including proper range use and deferred grazing.

Conditions Under Which the Practice Applies.

1. On marsh ranges firm enough to support cattle but where surface water, sloughs, and boggy areas make use of the marsh spotty, undependable, and hazardous.

2. On bottomlands or other range areas subject to intermittent overflow that interferes with proper use of the range or creates conditions hazardous to livestock.

Specifications. To be developed locally. The following information is for illustration only.

1. Flat top width of 10 feet.

2. Height two feet, settled, above normal high water.

3. Side slopes smooth and uniform. While side slopes are not specified, dirt should not be scattered; levees should be straight and full-bodied.

4. Berm width of 10 feet.

5. Where levees cross natural drains, adequate bridges or culverts should be installed to prevent interference with natural water movement.

6. Borrow pits:

(a) On walkways inside the grazing unit, borrow pits should be staggered from side to side to permit cattle to graze from either side of the levee and to prevent unnatural drainage or salt water intrusion.

(b) When walkways are constructed along property lines, the borrow pit may be located outside of the levee providing plugs of adequate length are left in the pit at intervals to prevent unnatural drainage or salt water intrusion. Plugs in the pit should be fenced to prevent cattle from crossing.

(c) Length of pits. Staggered pits 660 ft. long are desirable to provide access to every forty acres on both sides of the levee.

7. Walkways should be connected to existing ridges and levees. Ends of walkways which do not tie into a ridge should be shaped into a "T" or ramp broad enough to help prevent a boggy condition developing from livestock trampling.

8. Spacing. Space walkways parallel approximately one-half mile apart.

9. Protection. Protect newly-constructed walkways about two months, for settling, prior to use by livestock.

Contour Furrowing.

Definition. Plowing furrows on the contour on pastures or rangelands.

Objectives. To reduce runoff and conserve moisture to (a) increase forage production on rangelands, or (b) to protect lower lying lands or structures, e.g. for healing overfalls, protection of stockwater developments, protection of arable lands subject to overflow from adjacent pasture hillsides, or reduction of flood-plain damage from runoff or siltation from grazed slopes.

Conditions Under Which the Practice Applies.

1. On deteriorated ranges, especially those formerly producing some rhizomatous grasses and now reduced to annuals and short grasses rather than woody plants. (Contour furrows have little value in restoring productivity of tame pastures but may be justified under (b) above).

2. Beneficial effects are greatest on fine, moderately fine, medium, and moderately coarse textured soils. (Not recommended on fine, coarse textured, "droughty", or shallow soils, including those over-lain with impervious materials).

3. Most effective on gentler slopes. (Not recommended on slopes exceeding 20%).

4. Where the grazing management will be such as to permit the vegetation to take advantage of the treatment. Contour furrowing temporarily bares considerable surface and the customary rate of stocking may further reduce the desirable forage plants. Unless the operator is prepared to rest his treated range during the growing season following treatment, he should be advised to save the expense of the treatment until he can do so.

Specifications. To be developed locally. The information below is for illustration only.

Soils. Specify soils to which adapted.

Vegetation. Specify kinds of cover and range condition to which adapted; conditions under which treatment should be followed by reseeding; and where important, amount of rhizomatous grasses that should be present to make the treatment effective.

Engineering. Specify cross-section and spacing, varied as needed for particular conditions of slope, soil, and vegetation.

Grazing Management. Specify period range should be rested following treatment. Specify the degree of use required to reduce siltation and maintain the storage capacity of excavations, and improve range conditions.

Pitting.

Definition. Making shallow pits of suitable capacity and distribution on pasture or range lands.

Objectives. Identical with those under "Contour Furrowing."

Conditions Under Which the Practice Applies. See "Contour Furrowing."

Specifications. To be developed locally. See suggestions under "Contour Furrowing."

Deferred Grazing.

Definition. Postponing grazing for a prescribed period.

Objective. To increase the vigor of the forage stand and permit the desirable plants to produce seed or to increase free from grazing pressure and thus promote natural revegetation of the range.

Conditions Under Which the Practice Applies. On all rangelands grazed throughout the entire growing season, season-long, or year-long (except those ranges producing forage plants that become unusable under protection, e.g. salt grass).

Specifications. To be developed locally. The following are for illustration only:

Period of Deferment. Specify period of complete protection from grazing, e.g. from beginning of spring or summer growth until the desirable plants have ripened seed and reached the early yellowing stage of dormancy.

Frequency of deferment. Specify whether every second year, two years in succession, every third year, etc. depending on range condition and expected rate of recovery.

Use. Specify - use that will encourage seedling survival; uniform use of the forage crop without injury to parts of the range not deferred; and sustained production on areas in satisfactory conditions. (Close or extreme use during the non-deferred period or years can quickly nullify the benefits from deferred grazing).

Proper Range Use.

Definition. Grazing rangelands at an intensity which will maintain adequate residues for soil and water conservation, maintain the most desirable vegetation, or improve the quality of the vegetation where there has been deterioration.

Objectives. To develop or maintain a good cover of desirable forage plants adapted to the site by maintaining or improving their vigor, enabling the more desirable ones to increase under moderate grazing, and to permit accumulation of litter and mulch necessary for conservation of soil and moisture.

Conditions Under Which the Practice Applies. On all native ranges used for grazing by domestic livestock or game animals.

Specifications. Specifications for proper range use applicable to range sites, range condition classes, range units or portions of such units to be developed locally using one of the following methods:

1. Qualitative Method. Using descriptive use classes ranging from unused to extreme or destructive. (The attached sample may be modified to meet local conditions).
2. Quantitative Method in terms of pounds of forage residue left, percent of volume of forage removed, stubble-height of "key" forage plants, percent of seedstalks left, or
3. A combination of the above.

(Proper range use may vary by range site, range condition, weather, or management objectives, and should be specified. For example, a range in poor condition dominated by inferior plants may require close use for a short period to prevent seed production of the inferior plants. Under these conditions, close use might be considered "proper range use."

GUIDE TO DEGREE OF PROPER RANGE USE

USE RATING:	QUALITATIVE DESCRIPTION
Unused	No livestock use.
Slight	Practically undisturbed, and only best plants grazed.
Light	Most of the range being grazed. Little or no use of poor plants except new growth.
Moderate	All fully accessible areas are being grazed. The primary forage species are properly utilized (Up to _____of year's growth taken during growing season, or _____if during dormancy.)
Close	All accessible range plainly shows use and major sections are closely cropped. Some use of low-value plants.
Severe	Primary forage plants almost completely used. Low-value plants carrying grazing load. Hedged appearance of shrubs and trampling damage.
Extreme	Range appears stripped of vegetation. Primary forage plants weak from cropping of regrowth. Low-value plants closely grazed.

Range Seeding.

Definition. Establishment of perennial or improved reseeding grasses or legumes on rangelands. (Rangelands are defined as lands suitable for grazing by livestock and supporting uncultivated forage, primarily native grasses and other forage plants).

Objectives. To prevent abnormal soil and water losses and to restore rangelands, or lands converted to range from other uses, to full production.

Conditions Under Which the Practice Applies. On lands with the potential (soils and climate) for supporting a satisfactory cover of adapted range forage plants but now lacking sufficient amounts of the desired species to recover within a reasonable period through grazing management alone, and where there is reasonable expectation that the management following seeding will maintain the stand.

Specifications. To be developed locally to cover the following.

1. Range sites, or soils within a site, suitable for seeding.
2. Range conditions requiring seeding for recovery within a reasonable time.
3. Locally adapted species and mixtures, including acceptable sources of seed if important.
4. Seeding methods, including seedbed preparation.
5. Requirements for brush or weed control necessary to make the seeding effective.
6. Management. Specify period of protection required to assure establishment, and proper range use.

Rotation-Deferred Grazing

Definition. A system of grazing under which one or more range units are rested at planned intervals throughout the growing season of the "key" decreaser plants (e.g. every second, third, or fourth year, or two successive years out of four) and no unit is grazed more than half of any growing season or at the same time in succeeding years.

Objectives. To develop and maintain a plant cover that will effectively conserve soil and water; facilitate natural revegetation of ranges in poor, fair, or good condition and maintain ranges in excellent condition; and increase the uniformity of proper range use on all parts of grazing units.

Conditions Under Which the Practice Applies. On all arid, semi-arid, and semi-humid range lands grazed throughout the growing season, season-long, or year-long (except on ranges producing forage plants that become unusable under protection, e. g. salt grass).

Specifications. To be developed locally. The information below is for illustration only.

Number of Units. Two or more units on summer range and three or more units on spring-fall, season-long, and year-long ranges.

Frequency of deferment. Every third year for three-unit systems grazed in a three year cycle. Every second year for two, four, or more unit systems grazed in a two year cycle. Two successive years for four-unit systems grazed in a four year cycle.

Proper range use. Proper use of key forage species is essential on all units.

Salting.

Definition. Distributing salt on the range or pasture in such a manner as to improve the distribution of grazing.

Objectives. To aid proper range and pasture use by improving the distribution of grazing animals over all parts of the range or pasture, and to supply the mineral elements required to keep the livestock healthy, productive, and easy to manage.

Conditions Under Which the Practice Applies. On all range and pasture lands where grazing results in uneven use of the forage (usually indicated by extreme to close grazing near water and progressively lighter use as the distance from water increases) and on rangelands with natural salting areas but lacking other mineral elements.

Specifications. To be developed locally. The following information is for illustration only.

When. Start distribution of salt when the forage is green and succulent and the livestock have the greatest craving for salt.

Where. On fenced ranges, locate the first salting stations on the far edge of ungrazed areas near fence lines and in parts of the range or pasture most remote from water. On unfenced ranges locate the first salting stations as far out from water as livestock can be induced to graze between salt and water. Progressively move the salt to new locations in undergrazed areas as soon as the forage between salt and water appears to be properly used. Avoid distribution of salt on areas of high erosion hazard.

Salt requirements per animal month.

	On Green Forage	On Dry Forage
Cattle	2.75	1.00
Sheep	.75	.25
Horses	3.00	2.00

Water Spreading.

Definition. Diverting runoff from natural channels or gullies by means of a system of dams, dikes, or ditches, and spreading it over relatively flat areas.

Objectives. To increase moisture available for plant growth and thereby increase forage production and the green-feed period; control or reduce runoff, erosion, and flood hazards; or to replenish ground-water supplies.

Conditions Under Which the Practice Applies.

1. The watershed should have periodic runoff sufficient in volume and frequency to attain the objectives desired but small enough to be manageable, and with gentle gradients to prolong the flow and permit the most effective use of the water.
2. The spreading area should have gentle slopes to reduce the number of structures required and to increase the area to be watered from each structure, and large enough to handle the flow.
3. Range sites selected for water spreading should have the potential for sufficient increase in forage production to justify the cost of the system and with soils deep enough to absorb a large amount of water, and sandy enough to take the water in quickly.

Specifications. To be developed locally to cover approved materials, size of structures, gradients, and spacing in relation to watershed area, topography, soils, vegetation, and maximum flow.